PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference SJW/5770 WO	**FOR FURTHER ACTION**	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/EP 03/10337	International filing date *(day/month/year)* 17.09.2003	Priority date *(day/month/year)* 19.09.2002
International Patent Classification (IPC) or both national classification and IPC A23L1/305		
Applicant CERESTAR HOLDING B.V. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 4 sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the opinion
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
13.04.2004	12.01.2005
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Hedegaard, A Telephone No. +49 89 2399-8644

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP 03/10337

I. Basis of the report

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:

Description, Pages

1-13 as originally filed

Claims, Numbers

1-15 received on 07.12.2004 with letter of 07.12.2004

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-15
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-15
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-15
	No:	Claims	

2. Citations and explanations

see separate sheet

Re Section I

Basis of the opinion

1. In claim 11 the wording "to 70 w/w%" has been omitted for maltodextrin; contrary to the provisions of Article 34(2)(b) PCT.

Re Section V

Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Reference is made to the following documents:

   D1: EP-A-0 875 155
   D2: WO 00/48474 A
   D3: GB-A-1 519 164
   D4: EP-A-0 803 198

   D1 discloses (see example 1) a composition comprising 35 w/w% wheat protein hydrolysate, 58 w/w% maltodextrin and 6 w/w% amino acids.

   D2 discloses (see p. 3, l. 31 - p. 4, l. 24) calf milk replacers comprising proteins and maltodextrin having a DE-value between 10 and 35, preferably between 12 and 20. Composition 3b in Table I of D2 discloses a milk replacer comprising 18.6% modified wheat gluten, 17% maltodextrin/modified wheat gluten composition (85/15) and 7.9% premix comprising amino acids.

2. The subject-matter of claims 1-6 (composition), 7-10 (process), 11-13 (use) and 14-15 (milk replacer) is novel (Art. 33(2) PCT) since the feature "DE of 3 to 10" has not been disclosed in D1.

3. D2, which represents the closest prior art, discloses (see e.g. D2, comp. 3b in Table

I) a calf milk replacer from which the subject-matter of present claim 1 differs in that it comprises more maltodextrin (25 to 70% instead of 14%) and in that it specifies a "DE of 3 to 10".

The problem of the present application was to provide compositions useful as a protein source for use as milk powder replacers, said compositions having the required nutritional value, allowing the addition of liquid amino acids to be made without the need for the addition of salts and enabling the use of a ringdryer for a more economic process.

There is no motivation in any of the cited documents to modify the composition disclosed in D2 such that it contains from 25 to 70% w/w% of maltodextrin having a DE of 3 to 10 in order to solve the above-mentioned problem.

Therefore, the subject-matter of claims 1-15 is considered to involve an inventive step (Art. 33(3) PCT).

CLAIMS

1. A composition comprising:
   a) from 20 w/w% to 70 w/w% cereal proteins,
   b) from 25 w/w% to 70 w/w% maltodextrin having a DE of 3 to 10, preferably a DE of 5,
   c) from 1 w/w% to 20 w/w% amino acids, and
   d) from 0 w/w% to 20 w/w% minerals.

2. A composition according to claim 1 characterised in that it further comprises from 1 to 45% w/w fat.

3. A composition according to claim 1 or 2 characterised in that cereal proteins is are wheat proteins, preferably hydrolysed wheat gluten.

4. A composition according to any one of claims 1 to 3 characterised in that amino acids are lysine, threonine, tryptophane, or mixtures thereof.

5. A composition according to any one of claims 1 to 4 characterised in that it comprises:
   a) from 20 w/w% to 50 w/w% wheat gluten,
   b) from 30 w/w% to 70 w/w% maltodextrin having a DE of 3 to 10, preferably a DE of 5,
   c) from 1 w/w% to 5 w/w% lysine,
   d) from 0.3 w/w% to 5 w/w% threonine,
   e) from 0.05 w/w% to 2 w/w% tryptophane,
   f) from 0 w/w% to 5 w/w% calcium-based salts,
   g) from 0 w/w% to 10 w/w% phosphate-based salts,
   h) from 0 w/w% to 45 w/w% fat, and
   i) from 0 w/w% to 5 w/w% sodium chloride.

6. A composition according to any one of claims 1 to 5 characterised in that it comprises:
   a) from 35 w/w% to 45 w/w% wheat gluten,
   b) from 45 w/w% to 55 w/w% maltodextriin having a DE of 3 to 10, preferably a DE of 5,
   c) from 1 w/w% to 5 w/w% lysine,
   d) from 0.3 w/w% to 5 w/w% threonine,
   e) from 0.05 w/w% to 2 w/w% tryptophane,
   f) from 0 w/w% to 5 w/w% calcium hydroxide,
   g) from 0 w/w% to 10 w/w% salts of phosphoric acid,
   h) from 0 w/w% to 5 w/w% sodium chloride, and
   i) from 0 w/w% to 45 w/w% fat.

7. A process for preparing a composition of cereal protein, maltodextrin, amino acids which process comprises:
   a) Blending in liquid phase maltodextrin having a DE of 3 to 10, preferably a DE of 5, and cereal proteins preferably wheat gluten,
   b) Increasing dry substance of liquid phase,
   c) Adding amino acids in liquid form for obtaining liquid composition,
   d) Optionally adding water soluble minerals for obtaining completed composition,
   e) Optionally adding fat and homogenizing with liquid or completed composition, and
   f) Drying of liquid composition or completed composition.

8. A process according to claim 7 characterised in that in step f) the liquid or completed composition is dried in a ringdryer.

9. A process according to claim 7 or 8 which process comprises the following steps:

a) Hydrolysing wheat gluten for obtaining hydrolysed wheat gluten of degree of hydrolysis (DH) between 3 and 15%,
b) Hydrolysing starch to maltodextrin of DE of from 3 to 10,
c) Blending in liquid phase hydrolysed wheat gluten and maltodextrin,
d) Increasing dry substance of liquid phase to at least 55% w/w,
e) Adding amino acids in liquid form for obtaining liquid composition,
f) Optionally adding water soluble minerals and/or fat for obtaining completed composition,
g) Optionally adding fat and homogenizing with liquid or completed composition, and
h) Drying of liquid composition or completed composition.

10. A process according to any one of claims 7 to 9 which process comprises the following steps:
a) Hydrolysing wheat gluten for obtaining hydrolysed wheat gluten of degree of hydrolysis (DH) between 3 and 15%,
b) Hydrolysing starch to maltodextrin of DE of 5,
c) Blending in liquid phase hydrolysed wheat gluten and maltodextrin,
d) Increasing dry substance of liquid phase to 60% w/w,
e) Adding in liquid form lysine, threonine and tryptophane for obtaining liquid composition,
f) Adding calcium hydroxide, salts of phosphoric acid and sodium chloride for obtaining completed composition,
g) Optionally adding fat and homogenizing with completed composition, and
h) Drying of completed composition.

11. Use of a composition comprising a) from 20 w/w% to 70 w/w% cereal proteins, b) from 25 w/w% maltodextrin having a DE of 3 to 10,

preferably a DE of 5, c) from 1 w/w% to 20 w/w% amino acids, d) from 0 w/w% to 20 w/w% minerals, and e) from 0 w/w% to 45 w/w% fat, for replacing milk powder in food applications or feed applications.

12. Use according to claim 11 characterised in that said feed applications are suitable for young animals.

13. Use according to claim 12 characterised in that said young animals are selected from the group consisting of calves, piglets, lambs and pet.

14. A calf milk replacer comprising calf milk replacer ingredients and from 1 to 55% of a composition which contains a) from 20 w/w% to 70 w/w% cereal proteins, b) from 25 w/w% to 70 w/w% maltodextrin having a DE of 3 to 10, preferably a DE of 5, c) from 1 w/w% to 20 w/w% amino acids, d) from 0 w/w% to 20 w/w% minerals, and e) from 0 w/w% to 45 w/w% fat.

15. A calf milk replacer according to claim 14 characterised in that it comprises from 1 to 35% of a composition which contains a) from 20 w/w% to 70 w/w% cereal proteins, b) from 25 w/w% to 70 w/w% maltodextrin having a DE of 3 to 10, preferably a DE of 5, c) from 1 w/w% to 20 w/w% amino acids, d) from 0 w/w% to 20 w/w% minerals, and e) from 0 w/w% to 45 w/w% fat.